

Choledochoscopic radiofrequency ablation for congenital choledochal cysts

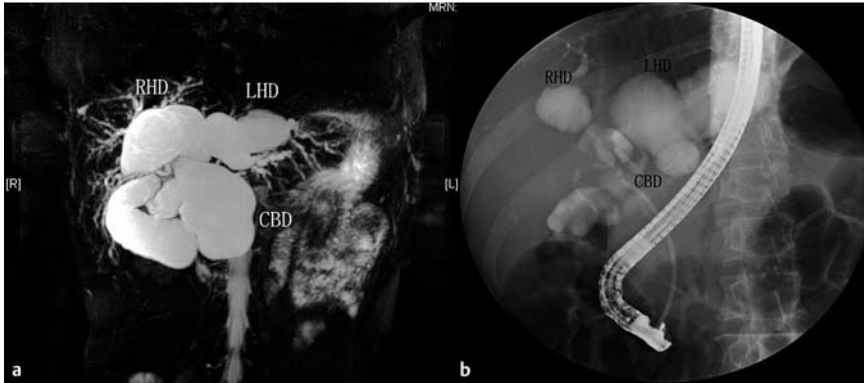


Fig. 1 A type IV-A congenital choledochal cyst as shown by: **a** dilations of the intrahepatic bile ducts and the common bile duct on magnetic resonance cholangiopancreatography (MRCP); **b** saccular dilations of the intrahepatic and extrahepatic bile ducts on endoscopic retrograde cholangiopancreatography (ERCP). CBD, common bile duct; RHD, right hepatic duct; LHD, left hepatic duct.

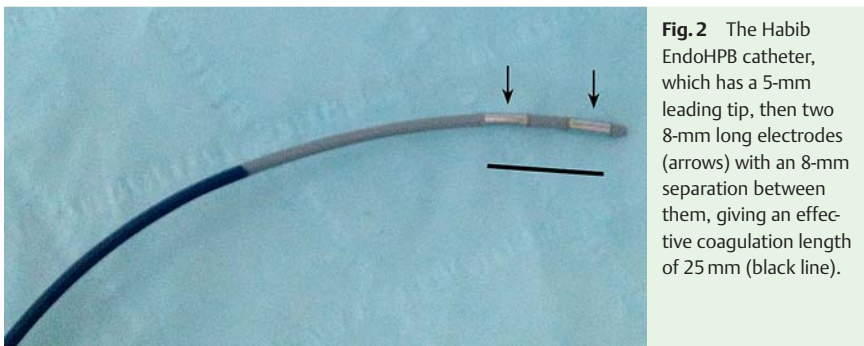


Fig. 2 The Habib EndoHPB catheter, which has a 5-mm leading tip, then two 8-mm long electrodes (arrows) with an 8-mm separation between them, giving an effective coagulation length of 25 mm (black line).

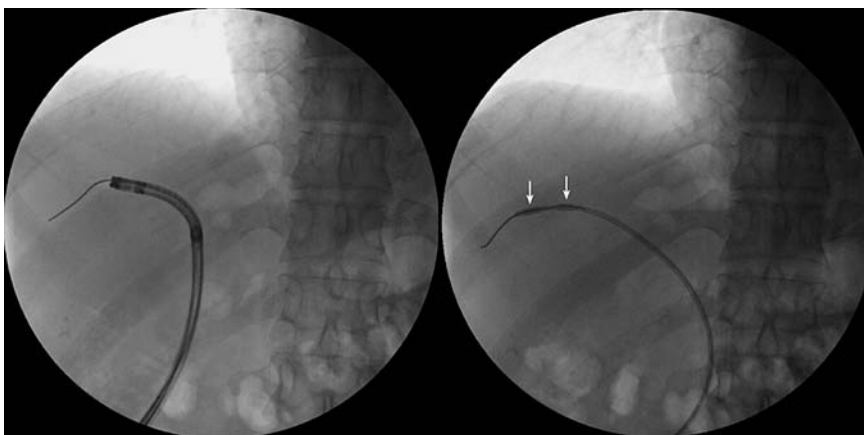


Fig. 3 Radiographic images showing choledochoscope-assisted radiofrequency ablation (RFA) with the wire-guided Habib EndoHPB being applied to the granular lesions of the right hepatic duct. The two electrodes of the catheter are indicated by the arrows.

A 47-year-old man with obstructive jaundice for 20 years consulted our hospital. Magnetic resonance cholangiopancreatography (MRCP) and endoscopic retrograde cholangiopancreatography (ERCP) demonstrated saccular dilations of the

intrahepatic and extrahepatic bile ducts (Fig. 1) and a type IV-A congenital choledochal cyst was diagnosed [1]. He underwent cyst excision of the dilated extrahepatic bile duct with a Roux-en-Y hepaticojejunostomy. Because a frozen section

of the biopsy from the hilar bile duct showed high-grade intraepithelial neoplasia, a T-tube was inserted into the common hepatic duct.

Choledochoscopy 3 months later using the Fujinon EO-270F (Fujifilm, Tokyo, Japan), which is 5.1 mm in diameter at its distal end and has a forceps channel of 2.2 mm in diameter, revealed granular lesions of the right hepatic duct. Histopathology of these showed tubulovillous adenoma.

Having obtained the informed consent of the patient, we carried out radiofrequency ablation (RFA) of the granular lesions using a choledochoscopic approach. This was done with a wire-guided Habib EndoHPB (Emcision, London, UK) (Fig. 2). Ablation was performed using an RFA generator (1500 RF generator; RITA Medical Systems, Fremont, California, USA) delivering electrical energy at 400 kHz, set at 10 W for 90 seconds (Fig. 3 and Fig. 4).

Choledochoscopic RFA was repeated (Fig. 5) for a total of six applications during the following year. Before the third and sixth RFA applications, biopsies were taken from the same place, both of which showed tubulovillous adenoma. The patient has remained under regular follow-up during the past year. The procedures have been well tolerated and have produced good palliation of his symptoms.

Cyst excision is the standard surgical treatment for congenital choledochal cysts because of the risk of subsequent biliary malignancy [2]. However, a complete resection of dilated intrahepatic bile ducts is not a straightforward procedure, so the risk of developing cancer is high [3]. Recently, RFA has become a potential new tool in the management of malignant biliary disease [4]. The use of RFA as a primary treatment for intraductal adenoma has been reported [5]. To our knowledge, this is the first report describing the use of RFA in a patient with congenital choledochal cysts, and the first time choledochoscope-assisted RFA has been performed. Therefore, choledochoscopic RFA is a feasible treatment for congenital choledochal cysts.

Endoscopy_UCTN_Code_TTT_1AR_2AF

Competing interests: None

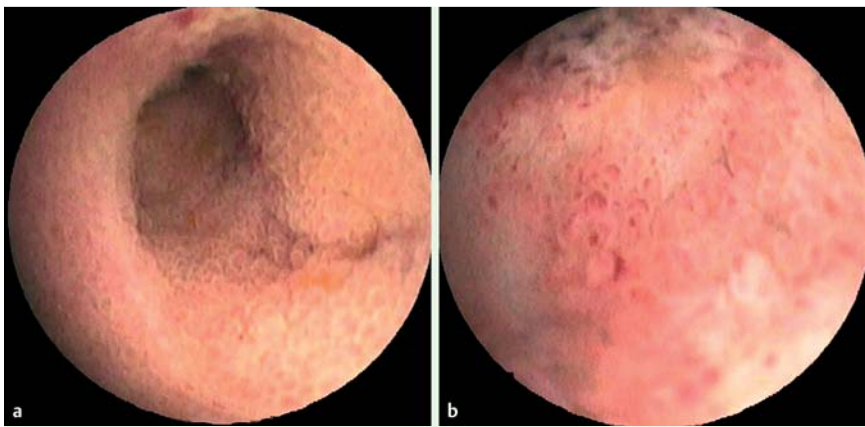


Fig. 4 Views during choledochoscopy showing: **a** the granular lesions before treatment; **b** ablated tumor with reddish coagulated mucosa immediately after the first radiofrequency ablation (RFA);

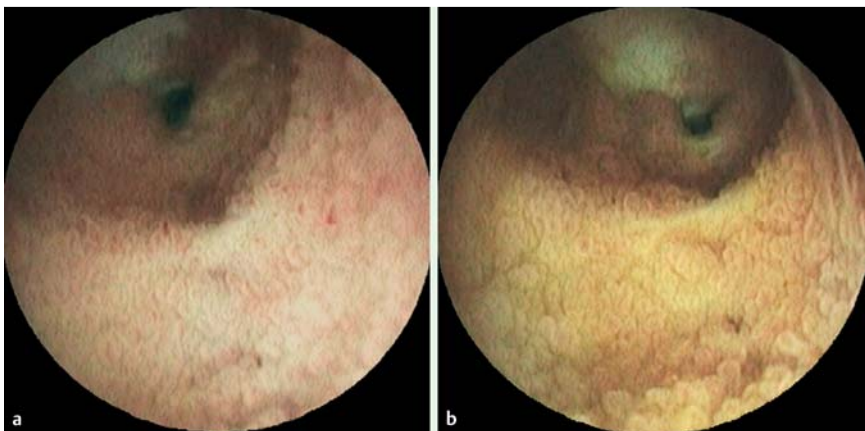


Fig. 5 Views during further choledochoscopies showing: **a** persistent reddish mucosa 2 weeks after the second RFA application, the edges of the ablated mucosa being hard to identify; **b** persistent granular lesions 2 months after the second RFA application, although the hyperemia and edema of the duct membrane have improved compared to the pretreatment image (● Fig. 4 a).

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DOI <http://dx.doi.org/10.1055/s-0034-1367604>
Endoscopy 2014; 46: E373–E374
© Georg Thieme Verlag KG
Stuttgart · New York
ISSN 0013-726X

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